

" 283. LAPLYSIA. *Corpus repens, obvelatum membranis reflexis.*

" *Clypeo dorsali, membranaceo, pulmones obtegente.*

" *Foramen laterale, dextrum, pro genitalibus.*

" *Anus supra extremitatem dorsi.*

" *Tentacula quatuor, anterieus sita.*

" depilans. 1. LAPLYSIA.

" *Syst. Nat.* 10. p. 653. *Tethys limacina.*

" *Rond. pisc.* 1. p. 520. *Lepus marinus.*

" *Gesn. aquat.* 475. *Lepus marinus Rondeletii.*

" *Bohads. mar.* 3. t. 1, 2, 3. *Lernea graphice.*

" *Seb. mus.* 3. t. 1, f. 8, 9.

" *Habitat in M. Mediterraneo; sanie depilans tactu.*

" (B. 51.) *foetidissima ad nauseam usque.*"

The description of the genus is implied for the species *depilans*, and it is also said to be the *Tethys limacina* of the tenth edition*. The second reference is to the same figure of Rondelet formerly cited for *Tethys leporina*. The third reference repeats the earlier citation to Gesner, with the same mistake as to the page. The fourth reference is to the excellent figure of Bohadsch's *Lernea*, representing unmistakably the *Aplysia depilans* of authors. The reference to Seba is less happy, the figures being too ambiguous for certain determination. It is perfectly evident that Linnæus's generic characters of *Laplysia* were derived from Bohadsch's work; and as the best figures were from the same source, the traditional identification of *depilans* is fully sustained.

SUMMARY.—From the foregoing facts it would appear that (1) the generic name *Tethys*, Linn. 1758, must replace *Aplysia* and *Laplysia*, Linn. 1767; and (2) as a substitute for *Tethys*, Linn. 1767, not 1758, we will probably be compelled to adopt either one of the new spellings of this name proposed in the early part of the century or an entirely new generic term.—*Proc. Acad. Nat. Sci. Philad.* August 27, 1895, pp. 347-350.

On the Origin of the Triradiate Spicules of Leucosolenia.

By E. A. MINCHIN.

In *Leucosolenia coriacea* the youngest spicules are found to be surrounded by six cells, which are similar in all their characters to the cells of the external flat epithelium of the sponge, and undoubtedly derived from this layer. It appears that three cells of the external epithelium wander inwards, and give rise to six by division of each cell into two, the six cells being arranged in such a way that three are placed more internally, *i. e.* towards the gastral

sight, for the first use of the word, on page 1072 of the *Syst. Nat.* 12, is in the correct form "*Aplysia*." The generic diagnosis given on this page is brief, but sufficient:—"283. *Aplysia* Tentacula 4. Anus supra postica."

* We would not replace the specific name *depilans* by *limacina*, because the latter was not recognizably defined in Linnæus's earlier edition.

surface of the body-wall, and three more externally, towards the dermal surface. Each of these sets of three cells has a form which might be compared to a trefoil, and the whole mass may be described as two such trefoils superposed, the cells of one trefoil exactly corresponding to those of the other.

The spicule is formed by the three inner cells, a ray being formed by each cell. In many instances it appears as if the three rays were formed quite separately and afterwards fused at the centre.

The three outer cells soon lose their rounded form, and, by throwing out processes, assume an amœboid appearance. After the spicule-rays have attained a length of 10 or 15 μ , the three outer cells are no more to be found, having apparently rejoined the flat epithelium from whence they came. The three inner cells alone secrete the rays, and continue to do so until the spicule is full-grown.

The spicule-rays soon appear to project beyond their formative cells, but are in reality covered by a thin layer of protoplasm. At the same time the spicule-sheath makes its appearance as a denser layer of substance between the protoplasm of the formative cell and the calcareous spicule, and it is by continued calcification of the sheath that the spicule grows.

The spicule-rays attain their full thickness at their bases before they have reached their full length. The formative cells remain at the bases of the rays until this portion is built up to its full thickness. Each formative cell then migrates along its ray towards the tip, building up the ray to its full thickness as it goes. In the fully formed ray the formative cell is found adherent to the extreme tip.

Theoretical considerations.

(1) The origin of the spicule-forming cells—that is to say, of the whole connective-tissue system in these sponges—from the external flat epithelium, is another nail in the coffin of the so-called mesoderm in these forms. Sponges are to be regarded as two-layered animals, composed of a dermal and a gastral layer. The dermal layer is differentiated into (1) an external flat contractile epithelium, the neuro-muscular system, and (2) an internal connective-tissue layer. The gastral layer consists of the collar-cells. The amœboid wandering cells are perhaps also to be reckoned with the gastral layer.

(2) The fact that each ray of a triradiate spicule is formed by a single cell shows that each triradiate spicule must be regarded as derived from the fusion of three originally separate monactinal spicules. This supports Schulze's theory, namely, that the triradiates of the more primitive Ascons have arisen as an adaptation to the structure of the sponge, and goes against Dreyer's theory that the primitive spicule of all sponges is a tetraxon, a form explained by him as the direct mechanical outcome of the vesicular structure of living bodies.—*Proc. Roy. Soc.* vol. lviii. no. 350, pp. 204, 205.